

10 CFR PART 21 REPORT

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Event # 42168

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21.21 UNSPECIFIED PARAGRAPH			

PART 21 FROM NUCLEAR LOGISTICS INC CONCERNING POTENTIALLY DEFECTIVE MICROLOGIC TRIP UNITS

The following information is provided on a potential defect in accordance with 10CFR Part 21, paragraph 21.21(b). NLI [Nuclear Logistics Inc] does not have the capability to perform the evaluation to determine if a defect exists. NLI has supplied safety related breakers with the Micrologic trip units only to First Energy-Beaver Valley and PSEG-Hope Creek. Both of these plants are aware of the issue and the corrective actions described below.

The basic component that contains a potential defect is the Micrologic trip device installed in Square D series NT and NW low voltage switchgear breakers. The nature of the potential defect is as follows:

- Under certain combinations of operating conditions, the trip unit spuriously trips the breaker. The conditions that cause the spurious trip are starting a motor directly by breaker closure (no starter in the circuit) and system transients that have not been defined.

The reported spurious trips are as follows:

- PSEG-Hope Creek has Square D NW series breakers installed. One spurious trip was identified in over 1000 motor starts using these breakers in 7 safety related applications that start motors directly.
- First Energy-Beaver Valley has Square D NT and NW series breakers installed. One NT breaker installed in a non-safety application had multiple spurious trips upon motor starting.
- There are no other reported spurious trips of breakers at PSEG-Hope Creek or First Energy-Beaver Valley. Spurious trips in other facilities have been reported to Square D.
- NLI is not aware of the installation of Micrologic trip devices in safety related applications in other nuclear plants in the United States.

The following actions and corrective action that has been taken:

- Root cause analysis and testing has been performed by Square D and NLI. It was determined that the spurious

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trip was due to a combination transient voltages during motor start and a breaker configuration that lasts approximately 100ms during breaker closure.

- The NT breaker was determined to be more sensitive to the spurious trip than the NW breaker.
- The reported spurious trip rate for the Micrologic trip units installed worldwide is estimated at approximately 0.05%.
- A modification was developed and tested to prevent the susceptibility of the trip unit. This modified design will be implemented on the existing breakers and all future units.

NLI is working with the impacted utilities to replace the existing trip units.
